

Claims

- [c1] 1. A full-zone optical image addressing apparatus, suitable for use in a scanner which comprises a driver motor and a guiding device, the full-zone optical image addressing apparatus comprising:
- an addressing device, comprising a plurality of geometric patterns located on an enclosure of the scanner, wherein the geometric patterns have a color scale different from a background color of the enclosure, each of the geometric patterns comprises a plurality of rows of pixels, and each row of pixels includes a number of pixels variable along a moving direction of the guiding device;
- an image extraction converter, extracting one of the rows of pixels and converting the row of pixels into a series of analog signals upon reception of an exposure signal;
- a comparator, connected to the image extraction converter to output a series of analog comparison signals according to a comparison between a critical voltage value and the series of analog comparison signals;
- an AND gate circuit, connected to the comparator to synchronously process the series of analog comparison signals and a pixel rate pulse, so as to output a plurality of pixel values corresponding to the extracted row of pixels; and
- a counter, connected to the AND gate circuit to receive the pixel values to calculate and output the row of pixels including the number of the pixels contained therein and the geometric pattern at which the row of pixels is located.
- [c2] 2. The full-zone optical image addressing apparatus according to Claim 1, wherein the enclosure includes a top lid, and the addressing device is mounted to the top lid with the geometric patterns sequentially and continuously arranged in parallel to the moving direction of the guiding device.
- [c3] 3. The full-zone optical image addressing according to Claim 1, wherein the enclosure includes a top shell to which the addressing device is mounted, and the geometric patterns of the addressing device are sequentially and continuously arranged in parallel to the moving direction of the guiding device.
- [c4] 4. The full-zone optical image addressing apparatus according to Claim 1,

wherein the addressing device is integrally formed with the enclosure.

- [c5] 5. The full-zone optical image addressing apparatus according to Claim 1, wherein each of the geometric patterns comprises an asymmetric pattern.
- [c6] 6. The full-zone optical image addressing apparatus according to Claim 1, wherein the image extraction converter uses residual sensor cells to extract the row of pixels of the addressing apparatus.
- [c7] 7. The full-zone optical image addressing apparatus according to Claim 6, wherein the geometric patterns have a maximum row width determined according to the number of pixels that the residual sensor cells can extract.
- [c8] 8. The full-zone optical image addressing apparatus according to Claim 7, wherein the counter comprises:
 a pixel counter, connected to the AND gate to receive the pixel values and to calculate and output the number of pixels included in the extracted row of pixels; and
 a zone counter, connected to the pixel counter to receive the number of pixels and to derive the geometric pattern where the extracted row of pixels is located; wherein when the number of pixels of the extracted row of pixels calculated by the pixel counter equals to the maximum row width, an add-on signal is output to the zone counter.
- [c9] 9. The full-zone optical image addressing apparatus according to Claim 1, wherein the counter obtains the moving direction of the transmission mechanism from a moving flag.
- [c10] 10. A full-zone optical image addressing apparatus, suitable for use of a scanner, the full-zone optical image addressing apparatus comprising:
 an addressing device, comprising a plurality of geometric patterns located on an enclosure of the scanner, wherein the geometric patterns have a color scale different from a background color of the enclosure, each of the geometric patterns comprises a plurality of rows of pixels, and each row of pixels includes a number of pixels variable along a scanning direction;
 an image extraction converter, extracting one of the rows of pixels and

converting the row of pixels into a series of digital signals upon reception of an exposure signal, wherein each of the digital signals of the series of digital signals corresponds to one pixel of the row of pixels;

a comparator, connected to the image extraction converter to output a series of digital comparison signals according to a comparison between a critical voltage value and the series of digital comparison signals; and

a counter, connected to the comparator to calculate and output the row of pixels including the number of the pixels contained therein and the geometric pattern at which the row of pixels is located.

[c11] 11. The full-zone optical image addressing apparatus according to Claim 10, wherein the enclosure includes a top lid, and the addressing device is mounted to the top lid with the geometric patterns sequentially and continuously arranged in parallel to the moving direction of the guiding mechanism.

[c12] 12. The full-zone optical image addressing apparatus according to Claim 10, wherein the enclosure includes a top shell to which the addressing device is mounted, and the geometric patterns of the addressing device are sequentially and continuously arranged in parallel to the moving direction of the guiding mechanism.

[c13] 13. The full-zone optical image addressing apparatus according to Claim 10, wherein the addressing device is integrally formed with the enclosure.

[c14] 14. The full-zone optical image addressing apparatus according to Claim 10, wherein each of the geometric patterns comprises an asymmetric pattern.

[c15] 15. The full-zone optical image addressing apparatus according to Claim 10, wherein the image extraction converter uses residual sensor cells to extract the row of pixels of the addressing apparatus.

[c16] 16. The full-zone optical image addressing apparatus according to Claim 15, wherein the geometric patterns have a maximum row width determined according to the number of pixels that the residual sensor cells can extract.

[c17] 17. The full-zone optical image addressing apparatus according to Claim 16,

wherein the counter comprises:

a pixel counter, connected to the comparator to calculate and output the number of pixels included in the extracted row of pixels; and

a zone counter, connected to the pixel counter to receive the number of pixels and to derive the geometric pattern where the extracted row of pixels is located; wherein when the number of pixels of the extracted row of pixels calculated by the pixel counter equals to the maximum row width, an add-on signal is output to the zone counter.

[c18] 18. The full-zone optical image addressing apparatus according to Claim 10, wherein the counter obtains the moving direction of the transmission mechanism from a moving flag.

[c19] 19. A full-zone optical image addressing apparatus, suitable for use of a scanner, the full-zone optical image addressing apparatus comprising:
 an addressing device, comprising a plurality of geometric patterns located on an enclosure of the scanner, wherein the geometric patterns have a color scale different from a background color of the enclosure, and each of the geometric patterns comprises a plurality of rows of pixels and has the same maximum row width and the same maximum length;
 an image extraction converter, extracting one of the rows of pixels upon reception of an exposure signal;
 a pixel row counter, connected to the image extraction apparatus to calculate the number of the row of pixels according to the extracted row of pixels;
 an interpolation counter, connected to the pixel row counter to receive the row number of the row of pixels output from the pixel row counter, and to perform interpolation to derive the number of pixels in the extracted row of pixels according to the maximum row width, the maximum length, and the row number; and
 a zone counter, connected to the pixel row counter to calculate the geometric pattern where the extracted row of pixels is located.

[c20] 20. The full-zone optical image addressing apparatus according to Claim 19, wherein each of the geometric patterns comprises an asymmetric pattern.

- [c21] 21. The full-zone optical image addressing apparatus according to Claim 19, wherein the image extraction converter uses residual sensor cells to extract the row of pixels of the addressing apparatus.
- [c22] 22. The full-zone optical image addressing apparatus according to Claim 21, wherein the maximum row width is determined according to the number of pixels that the residual sensor cells can extract, and the maximum length of the geometric pattern is determined according to the maximum value that the pixel row counter can calculate.